

Remarks

I. Summary of the Office Action

In the final Office Action mailed December 9, 2010, the Examiner rejected Claims 18-19, 25-26, 30, 32-37, and 41-43 under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,270,474 (Nuesch) in view of U.S. Patent No. 4,181,477 (Litt). Further, the Examiner rejected Claims 20-21 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Nuesch and Litt in view of U.S. Patent No. 5,025,829 (Edwards) and U.S. Publication No. 2003/0153869 (Ytteborg), rejected Claims 27 and 38-40 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Nuesch and Litt in view of Edwards, and rejected Claims 29 and 31 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Nuesch and Litt in view of U.S. Patent No. 5,453,097 (Paradis).

In the Advisory Action mailed May 5, 2011, the Examiner stated that the amendments made to the claims in the Response filed April 21, 2011 raise new considerations by changing the scope of the claims, which would require an additional search. The Examiner then stated why the Examiner believes the Nuesch, Litt, and Paradis references can be applied to the amended claims. Applicants address both the rejections made in the final Office Action and the statements given in the Advisory Action below.

II. Status of the Claims

Presently pending are Claims 18-21, 25-27, 30, and 32-40. Applicants herein amend Claim 18 to include the subject matter of Claims 29 and 31, and cancel Claims 29, 31, and 41-43. Applicants submit that no new matter has been added.

III. Response to the Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected Claims 18-19, 25-26, 30, 32-37, and 41-43 under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,270,474 (Nuesch) in view of U.S. Patent No. 4,181,477 (Litt).

a. The Cited References do not Disclose the Claimed Features

Independent Claim 18, as amended, recites a valve body with a circular diaphragm comprising narrow elongate openings which are distributed adjacent the periphery of the diaphragm and are separated from one another by webs, and compact openings between the elongate openings that comprise "a T-shaped configuration

comprising a ***foot and a bar extending transversely over the foot, the bar extending adjacent said periphery and the foot being oriented toward the webs and radially toward a center point of the circle of the diaphragm.***” This valve body configuration of narrow elongate openings and compact openings on a diaphragm is not shown in the cited art.

The Examiner acknowledges that Nuesch does not disclose a diaphragm comprising the configuration recited in Claim 18 of narrow elongate openings and compact openings. Indeed, Nuesch does not disclose a diaphragm comprising narrow elongate openings and compact openings, wherein the compact openings comprise “a T-shaped configuration comprising a foot and a bar extending transversely over the foot, the bar extending adjacent said periphery and the foot being oriented toward the webs and radially toward a center point of the circle of the diaphragm,” as recited in Claim 18.

Furthermore, Nuesch does not teach or show webs with weaker portions in the areas adjacent the webs, which are also recited in Claim 18.

Litt also does not disclose a diaphragm with compact openings comprising a T-shaped configuration comprising a foot and a bar extending transversely over the foot, the bar extending adjacent said periphery and the foot being oriented toward the webs and radially toward a center point of the circle of the diaphragm. The valve plate (30) in Litt shows compact openings (72) that are clearly circles, and do not comprise a T-shape. (Fig. 2).

Furthermore, Litt does not teach or show webs on the valve plate (30) with weaker portions in the areas adjacent the webs, which are also recited in Claim 18.

The Examiner stated in the Advisory Action of May 5, 2011 that Paradis teaches openings comprising a T-shaped configuration, and that one of skill in the art would combine Paradis with Nuesch and Litt “for the purpose of controlling the flow of fluid through the disk when under pressure.” The Examiner is mistaken, however, because the item in Paradis the Examiner has pointed to as having a “T-shaped” opening is ***not*** a diaphragm with the purpose of controlling the flow of fluid through a disk, but is merely a limiting structure placed above a diaphragm. Furthermore, the openings in the limiting structure are not “compact.”

Paradis does not teach a diaphragm with openings as recited in Claim 18. The diaphragm (10d) in Paradis merely has a slit S. (See, e.g., col. 5, line 66 - col. 6, line 10; Figs. 1B, 3B-3C, 4, 7A-7C). The geometry of the slit S is clearly shown in the figures

referenced above; it is a simple, single elongated slit. There are no compact openings in the diaphragm.

The structure the Examiner pointed to (structure 12) that is discussed at col. 6, lines 10-24 of Paradis is **not** a diaphragm. It is a solid structure placed above the diaphragm 10d and its purpose is to “limit the deformation” of the diaphragm 10d. (See *a/so* Figs. 1A and 2A). The structure 12 is clearly not intended to move like a diaphragm or to serve as any sort of diaphragm, its purpose is to *limit* the deformation of the diaphragm below it.

Element 72 is present in Fig. 7A, and this element is also a limiting structure, like the limiting structure 12 of Figure 1B. Therefore, element 72, like limiting structure 12, is **not** a diaphragm, but instead is a limiting structure placed above the diaphragm (70d). As a limiting structure, element 72 and the openings thereon have a completely different impact on the system in Paradis than the T-shaped openings in the valve claimed in Claim 18.

Moreover, the openings 72-1 in the limiting structure 72 are extremely large – they extend over halfway around the circumference of the limiting structure and cannot be deemed to be “compact” openings as recited in Claim 18. If these large openings were present on a diaphragm, elongate openings and webs between the openings as they are recited in Claim 18 would not fit, and the diaphragm certainly would not operate as intended in Claim 18. There is no teaching in Paradis to reduce the size of the openings 72-1, nor is there any teaching to place these openings on a diaphragm instead of a limiting structure.

The shape, size, and placement of the openings is highly relevant to the performance of a diaphragm; these factors influence whether the diaphragm opens at a low or high pressure, if it opens slowly or fast, if there is leakage shortly after it is closed, and so on. Thus, one of ordinary skill in the art would not seek to combine the large openings in an item that is not a diaphragm with other types of openings in diaphragms to get the result that is recited in Claim 18.

From the reasoning stated in the final Office Action and the Advisory Action detailed above, it appears that impermissible hindsight reconstruction was used in an effort to reject Applicants’ claims. The only reason to combine the diaphragms in Nuesch and Litt with large T-shaped openings from a structure that is not a diaphragm and that is not designed to operate as a diaphragm (Paradis) to achieve a specialized diaphragm designed for improved flow, comprising both narrow elongate and compact,

T-shaped openings, and further comprising webs between the narrow elongate openings, is Applicants' claims themselves (and the remainder of Applicants' disclosure), rather than any objective evidence cited by the Examiner. It is impermissible to use hindsight reconstruction to conclude a claimed invention is obvious without citing to objective evidence that suggests such a conclusion. See M.P.E.P. § 2143 (stating that "impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art"); *In re Royka*, 490 F.2d 981 (CCPA 1974); see also *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988) (explaining that an Examiner can only meet the burden of establishing a *prima facie* case of obviousness "by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art [that] would lead that individual to combine the relevant teachings of the references"); *In re Lee*, 277 F.3d 1338, 1342-43 (Fed. Cir. 2002) (stating that rejections under 103 must be based on evidence).

In this case, as previously discussed, Nuesch and Litt's applicable teaching is no more than elongate openings being present on a diaphragm, and Paradis teaches no more than large openings present in a limiting structure that is not and cannot be described as a diaphragm; thus the Examiner has not pointed to any objective evidence that suggests combining the features of Nuesch and Litt with Paradis results in the diaphragm recited in Claim 18. Thus, it appears to be only with the benefit of Applicants' claims and disclosure that a suggestion can be made to make a substantial change to Nuesch and Litt. Consequently, the Examiner's obviousness rejection is improper.

None of Nuesch, Litt, and Paradis, nor the combination thereof, renders obvious valve body with a circular diaphragm comprising narrow elongate openings which are distributed adjacent the periphery of the diaphragm and are separated from one another by webs, and compact openings between the elongate openings that comprise "a T-shaped configuration comprising a foot and a bar extending transversely over the foot, the bar extending adjacent said periphery and the foot being oriented toward the webs and radially toward a center point of the circle of the diaphragm." .

For at least this reason, Applicants submit that there can be no *prima facie* obviousness in view of Nuesch, Litt, and Paradis. Applicants thus submit that Claim 18 is allowable. Claims 19-21, 25-27, 30, and 32-40 ultimately depend from Claim 18 and Applicants submit that for at least the reason that each claim ultimately depends from allowable Claim 18, Claims 19-21, 25-27, 30, and 32-40 are also allowable.

IV. Conclusion

For these reasons, Applicants respectfully request favorable reconsideration and allowance of all the pending claims. Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3347.

Respectfully submitted,

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Date: June 8, 2011

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